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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Taichi Majima

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EXAMINER

KASSA, ZEWDU A

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/582,615	Applicant(s) MAJIMA, TAICHI	
	Examiner ZEWDU KASSA	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is in response to communication filled on 08/13/10.

New claims 13-24 are pending on this application.

2. Applicant's arguments with respect to claims 13-24 have been fully considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 13-18, 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bader (US .2003/0167425) in view of Kushita (US 5835508) Choi (US 2002/0040460).**

5. As per claim 13, Bader teaches a transmitting apparatus comprising: a dividing part supplied with original data arranged in order from one with highest importance (Bader, Para [0071]), which comprises first data and second data after the first data and for dividing the first data into first bit data with a first number of bits and the second data into second bit data with a second number of bits larger than the first number of bits (Bader, Fig. 3 item "HIGH PRIORITY BITS 312" "LOW PRIORITY BITS 320"), the first data being protected and having a predetermined number of higher order bits, the second data not being protected (Bader, Para [0071] "protected"); a bit adding part for creating encoded data by adding redundant bit data or additional bit data (Bader, Fig. 2 item 230) and none of the redundant bit data and the additional bit data is added to the second bit data regardless of whether the quality of the communication environment is low or high, to create the encoded data having the same number of bits as that of the encoded data created by adding either redundant bit data or additional bit data to the first data bit (Bader, Para [0071] "the least important bits" – wherein the least important bits encoded without additional bits or redundant bits. Para [0094] - [0095] - wherein the format (amount of bits or quantity) is adjustable or can be modified as needed. Furthermore, MPEP states "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine

Art Unit: 2611

experimentation.” In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)); and a modulating part for performing modulation on the basis of the created encoded data to create and output a modulated signal (It is well known in the art in a transmission system to have a modulating part for performing modulation on the basis of the created encoded data to create and output a modulated signal in order to transmit).

6. Bader does not explicitly teach a communication path quality decision part for deciding quality of an environment in a communication path; wherein if it is decided by the communication path quality decision part that the quality of the communication environment is low, the redundant bit data is added to the first bit data to create the encoded data. **Kushita** teaches a communication path quality decision part for deciding quality of an environment in a communication path (Kushita, Col 5 L65-67); wherein if it is decided by the communication path quality decision part that the quality of the communication environment is low, the redundant bit data is added to the first bit data to create the encoded data (Kushita, Col 6 L11, Col 6 L18-21, Col 2 L24-35). Thus, it would have been obvious to one having ordinary skill in the art, at the time of the invention to implement the instant limitation, as taught by Kushita in to Bader because Kushita teaches the benefit of adaptively adding redundant bit based on the measure of the

Art Unit: 2611

channel quality in order to achieve effective use of the transmission channel (Kusshita, Col 2 L4-7, Summary of the invention).

7. Bader does not explicitly teach while if it is decided that the quality is high, additional bit data associated with the original data to be transmitted is added to the first bit data to create the encoded data. **Choi** teaches while if it is decided that the quality is high, additional bit data associated with the original data to be transmitted is added to the first bit data to create the encoded data (Choi, Para [0038] "...redundancy required ... can be determined adaptively so that if channel conditions are good ... more of the source bits can be transmitted", Para [0005]). Thus, it would have been obvious to one having ordinary skill in the art, at the time of the invention to implement the instant limitation, as taught by Choi in to Bader because Choi teaches the benefit of transmitting more information data instead of redundant bit, when channel quality is good, that will provide a more data rate or throughput (Choi,, Para [0038] "... redundancy required ... can be determined adaptively so that if channel condition are good ... more of the source bits can be transmitted").

8. As claim 14, Bader in view of Kushita and Choi teaches the transmitting apparatus according to claim 13, wherein the bit adding part

Art Unit: 2611

operates to arrange data symbols such that a Euclidian distance of the first bit data added with the redundant bit data is extended (It is well known in the art –see US 5457705 Col 1 L23-33 “Euclidian”).

9. As claim 15, Bader in view of Kushita and Choi teaches the transmitting apparatus according to claim 13, wherein the bit adding part operates to add the redundant bit data to each of the bits of the first bit data such that a gray code is produced (It is well known to use a gray code, where two successive values differ in only one bit, in error correction because it prevents ambiguity during detecting -see US 4901072 Col 1 L38-43).

10. As claim 16, Bader in view of Kushita and Choi teaches the transmitting apparatus according to any one of claims 13 to 15, the communication path quality decision part comprising a received signal strength indicator measuring part that measures a received signal strength indicator of a data transmission destination (Kushita, Col 5 L65-67), wherein the bit adding part operates to acquire the received signal strength indicator from the received signal strength indicator measuring part (Kushita, Col 2 L24-35, col 1 L45-50) and decide quality of an environment in the communication path on the basis of a level of the received signal strength

Art Unit: 2611

indicator acquired (Kushita, Col 3 L55-59 "channel quality signal indicative").

11. As claim 17, Bader in view of Kushita and Choi teaches the transmitting apparatus according to any one of claims 13 to 15, wherein the bit adding part operates to acquire at least one piece of information among a received signal strength indicator measured by a data transmission destination, a vector error of a demodulated wave, and a bit error and decide quality of an environment of the communication path on the basis of the information acquired (Kushita, Col 4 L39-49 "... the destination decoder ... detects errors ... destination transmitting unit ... transmit the ... channel quality signal back to the source station ...").

12. As claim 18, Bader in view of Kushita and Choi teaches the transmitting apparatus according to any one of claims 13 to 15, wherein the modulating part performs modulation in accordance with a multi-value FSK system (Kushita, Col 5 L54-55 "modulation" – it is well known in the art to perform "multi-value FSK system" –see US 5818875 Section "DESCRIPTION OF THE RELATED ART").

13. Claims 19, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bader (US .2003/0167425) in view of Kushita (US 5835508).

14. As claim 19, Bader teaches the receiving apparatus (Bader, Fig. 1 item 107) that receives a modulated signal created by performing modulation on the basis of encoded data created in such a way that in original data arranged in order from one with highest importance (Bader, Para [0071]) and comprising first data to be protected having a predetermined number of higher order bits and second data not to be protected after the first data, the first data is divided into first bit data with a first number of bits and the first bit data is added with redundant bit data or additional bit data associated with the original data to be transmitted is encoded to create encoded data (Bader, Fig. 3 item "HIGH PRIORITY BITS 312" "LOW PRIORITY BITS 320", Para [0071] "redundancy"), while the second data is divided into second bit data with a second number of bits larger than the first number of bits (Bader, Fig. 3 item "LOW PRIORITY BITS 320") and the second bit data is added with none of the redundant bit data and the additional bit data to create encoded data (Bader, Fig. 3 item "LOW PRIORITY BITS 320"), the receiving apparatus comprising: a demodulating part for demodulating the received modulated signal (It is well known in the art receivers having a demodulating part in order to recover transmitted data);

Art Unit: 2611

15. Bader does not explicitly teach a symbol deciding part for applying, at every Nyquist, symbol decision to the signal demodulated by the demodulating part; a bit converting part for converting a symbol value obtained by applying the symbol decision by the symbol deciding part to a bit value having a predetermined number of bits; and a frame recovering part for combining the bit data added to the first bit data from the bit value to form combined data, for deciding validity of the formed combined data based on whether a CRC error exists or not, and for recovering the combined data if it is decided to be valid, while deleting the combined data if it is decided to be invalid. **Kushita** teaches a symbol deciding part for applying, at every Nyquist, symbol decision to the signal demodulated by the demodulating part (Kushita, Col 3 L44-49, Col 8 L5-10, "at every nyquist" – it is well known in the art in order to recover or demodulate data –see US 6650718 "Background section"); a bit converting part for converting a symbol value obtained by applying the symbol decision by the symbol deciding part to a bit value having a predetermined number of bits (Kushita, Col 3 L44-49, Col 8 L5-10); and a frame recovering part for combining the bit data added to the first bit data from the bit value to form combined data (Kushita, Col 3 L47-50 – wherein it is well known in order to achieve frame synchronization all the bits that form the frame need to be combined), for deciding validity of the formed combined data based on whether a CRC error

Art Unit: 2611

exists or not, and for recovering the combined data if it is decided to be valid, while deleting the combined data if it is decided to be invalid (It is well known in the art to decide the validity of data using CRC and if data is valid will be re-covered , if not the data will be avoided– see Bader 2003/0167425, Para [0040]). Thus, it would have been obvious to implement the teaching to implement the teaching of Kushita in to Bader because Kushita teaches a benefit of a receiver system that receives data in order to demodulate or recover the transmitted data or symbols with or without redundancy bit and accomplish frame synchronization while achieving efficient or effective utilization of the channel transmission (Kusshita, Col 2 L4-7, Summary of the invention).

16. (New) The receiving apparatus according to claim 19, wherein the frame recovering part operates to decide validity of the combined data formed by combining the added bit data in accordance with a cyclic redundancy check (Kushita, Col 3 L47-50 – wherein it is well known in order to achieve frame synchronization all the bits that form the frame need to be combined. Furthermore, It is well known in the art to decide the validity of data using CRC and if data is valid, it will be re-covered; if not the data will be avoided– see Bader 2003/0167425, Para [0040]).

Art Unit: 2611

17. As per claim 21 and 23, similarly analyzed as claim 13.

18. As per claim 22 and 24, similarly analyzed as claim 19.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ZEWDU KASSA whose telephone number is (571)270-5253. The examiner can normally be reached on Monday - Friday (7:30 - 5:00).

Art Unit: 2611

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on 571 272 3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

zk

/David C. Payne/

Supervisory Patent Examiner, Art Unit 2611